



Star[™] series

Solar Charge Controller

(with Programmable Street-Light Function)

User Manual

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www.Lumiax.com
ISO9001:2008
CE, RoHS

Ver: DD06

Solar Charge Controller

Thanks for selecting the Star series solar charge controller. Although the controller is very simple to use, please take the time to read this user manual. This will help you to make full use of many advantages the controller can provide your solar lighting system.

1.Description

Star series solar controller is programmable and especially for solar lawn light system, with better cost-effective.

It comes with a number of outstanding features, such as:

- IP68, Strong and durable aluminum case
- 12V system voltage
- Working time during night selection
- LED status display
- Four stage charge way: fast, boost, equalization, float
- Full automatic electronic protect function

2.Safety instructions and waiver of liability

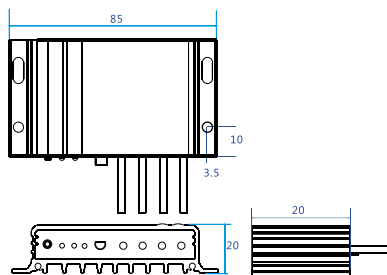
2.1 Safety

- ①The solar charge controller may only be used in PV systems in accordance with this user manual and the specifications of other modules manufacturers. No energy source other than a solar generator may be connected to the solar charge controller.
- ②Batteries store a large amount of energy, never short circuit a battery under all circumstances. We strongly recommend connecting a fuse directly to the battery to protect any short circuit at the battery wiring.
- ③Batteries can produce flammable gases. Avoid making sparks, using fire or any naked flame. Make sure that the battery room is ventilated.
- ④Avoid touching or short circuiting wires or terminals. Be aware that the voltages on special terminals or wires can be as much as twice the battery voltage. Use isolated tools, stand on dry ground, and keep your hands dry.
- ⑤Keep children away from batteries and the charge controller.

2.2 Liability Exclusion

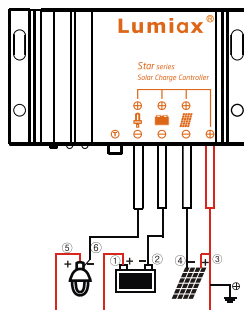
The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by any unauthorized person, unusual use, wrong installation, or bad system design.

3.Dimensions



4.Installation

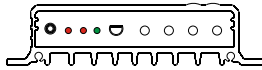
The following diagrams provide an overview of the connections and the proper order.



- To avoid any voltage on the wires, first connect the wire to the controller, then to the battery, panel or load.
- Make sure the wire length between battery and controller is as short as possible.
- Recommended minimum wire size: 1.5 mm².
- Be aware that the positive terminals of controller are connected together and therefore have the same electrical potential. If any grounding is required, always do this on the positive wires.
- Connecting capacitive load may trigger short circuit protection.

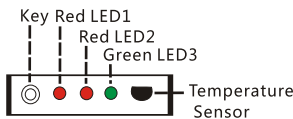
5.LED indications and Faults & Alarms

5.1LED Display Explanation



LED	Status	Function
Green	Slow flash(1s on/1s off)	float charging
	Flash(0.4s/0.4s)	Battery connected, day detected
	Fast flash(0.1s/0.1s)	Equal charging
	On	Battery connected, night detected
Red	Off	No faults detected
Red Green	Off	No battery connected
	Lighted together (1second)	Controller start-up
	Flash together(0.5s/3s)	Discharge function is locked.

5.2Faults & Alarms



Faults	Display	Reason	Remedy
Loads are not supplied	Red LED2 on	Battery is low	Load will reconnect as soon as battery is recharged.
	Red LED1 on	Over current/ Short circuit of loads/ Over temp	Switch off all loads. Remove short circuit. Controller will switch on load automatically after max 1 minute. After the temperature reduces, the load opens automatically
	All LED fast flash	Only connection solar panels in the system	Terminal sequence error, should first connect the battery, then the solar or load
Battery is empty after a short time	Red LED2 on	Battery has low capacity	Change battery
Battery is not being charged during the day	Green LED on	Solar array faulty or wrong polarity	Remove faulty connection /reverse polarity

6.Test and operation

6.1Test Function

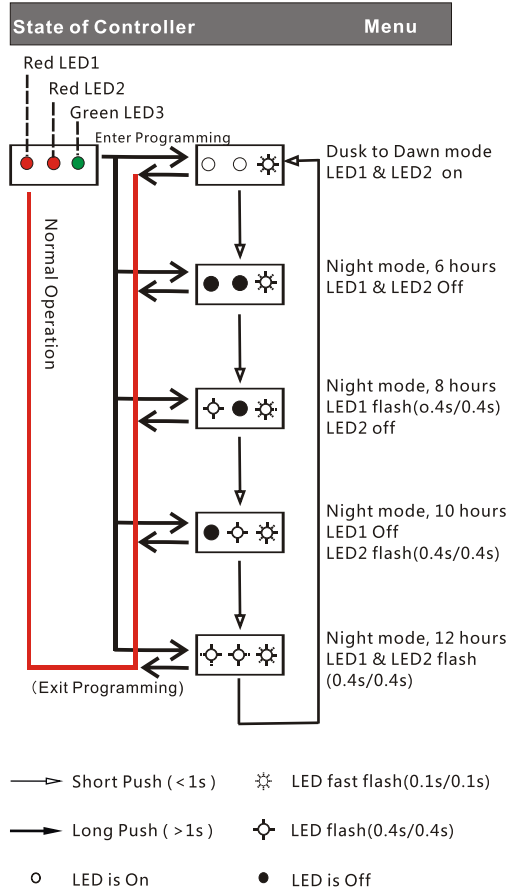
During the daytime the testing function can help the user to verify correct installation or for trouble shooting a system problem. Short pushing the button will light up the lamp which is connected to the load terminals.

The lights will be on in the day for 1 minute intervals. Within 1 minute the lights can be turned off via pushing Button.

6.2Programming Nightlight Function

You enter the programming mode with a long push on the button, then the Green LED is fast flashing(0.1s on,0.1s off), and the customer can modify the working time during night by short press the test button. The factory default setting is dusk to dawn mode.

The programming menu structure is described on the follow.



6.3 Discharge Lock Function

Long press the key for at least 8 seconds, the discharge function of the controller will be locked, and the load has no output. All the three LED indicators will slow flash(0.5s on, 3s off).

The controller will work properly only when the key is been pressed again for at least 8 seconds.

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7.Safety Features

	Solar terminal	Battery terminal	Load terminal
Reverse polarity	Protected	Protected	Protected *1
Short circuit	Protected	Protected *2	Switches off immediately
Over current	——	——	Switches off with delay
Reverse Current	Protected	——	——
Over voltage	Max.30V *3	Max. 25V	——
Under voltage	——	——	Switches off
Over temp.	switches off the load if the temperature reaches the set value.		

*1.Controller can protect itself, but loads might be damaged.

*2.Battery must be protected by fuse, or battery will be permanently damaged.

*3.The solar panel voltage should not exceed this limit for a long time as voltage protection is done by a varistor.



Warning: The combination of different error conditions may cause damage to the controller. Always remove the error before you continue connecting the controller.

8.Technical Data

Model	Star03	Star06
Nominal voltage	12V	
Max. solar current or load current	3A	6A
Fast voltage	14.0V(25°C)	
Boost voltage	14.5V(25°C)	
Equalization voltage	14.8V(25°C)	
Float voltage	13.7V(25°C)	
Load disconnect voltage	11.2~11.8V	
Load reconnect voltage	12.5V	
Working time during night	DUSK-to-DAWN , 6 , 8 , 10 , 12Hours (Programmable)	
Day/Night threshold	5.0V	
Battery type	Liquid	
Temperature Compensation	-4.17mV/K per cell(Boost, Equalization);-3.33mV/K per cell(float)	
Max. solar voltage	30V	
Max. battery voltage	25V	
Over voltage protection	15.5V	
Cable length	120mm/80mm	
Dimensions /Weight	85 x 40 x 20 mm / 105g	
Wire size	1.5mm ²	
Own consumption	4mA	
Ambient temperature	-40°C ~ +60°C	
Degree of protection	IP68	
Max altitude	4000 m	